



UNCLAS//FOUO



***USNS Comfort Hospital Ship  
Operation Unified Response  
8 June 2010  
Defense Health Board Meeting***

***Captain James J. Ware  
USNS Comfort MTF, Commanding Officer***



**Overall Classification:  
UNCLAS//FOUO**



UNCLAS//FOUO



# OPERATION UNIFIED RESPONSE



I am a military service member. This work was prepared as part of my official duties. Title 17, USC, 105 provides that " Copyright protection under in not available for any work of the U.S. Government. Title 17, USC, 101 defines a U.S. Government work as a work prepared by a military service member or employee of the U.S. Government as part of that person's official duties."

UNCLAS//FOUO

**United States Naval Forces Southern Command**





UNCLAS//FOUO



# Mission Summary



support the people of Haiti in their time of need



UNCLAS//FOUO



# Executive Summary

- **7.0 magnitude earthquake on 12 Jan 2010 caused historic devastation to the country of Haiti**
  - Estimated 230,000 Haitians killed
  - Government of Haiti was in a state of emergency
    - Ministry of Health infrastructure was incapacitated
- **TG 41.8 was formed on 20 Jan and quickly become a focal point for critical triage and medical regulation for JTF-Haiti**
  - COMFORT received first patient 7 days after earthquake
  - Nearly 200 patients admitted within first 40 hours on station
  - Operated as a joint military, inter-agency and NGO medical response Task Group



UNCLAS//FOUO

United States Naval Forces Southern Command





UNCLAS//FOUO



# AGENDA

- Executive Summary
- International Response
- Lines of Operations
- USNS COMFORT Medical Focus
  - Medical Assessment / Statistics
  - Navy Staff /NGO Augmentation
  - Medical Capabilities/ Operations Focus/Lines of Communication/ Transportation Resources
  - Medical Logistics
  - Medical Supply Procurement
  - Equipment Repair/Procurement
  - Blood Supply
  - Orthopedic Support



UNCLAS//FOUO

United States Naval Forces Southern Command



UNCLAS//FOUO



## **USNS COMFORT Activation as of 1100 EST 13 January, 2010**

<b>HOSPITAL --MTF SYSTEMS</b>		
<b>Activation Order</b>	<b>USFF--1100 EST 13 January, 2010</b>	
<b>ANGIO Suit installation</b>	<b>Structural work in progress. Install date sched for Feb 2010. Not Mission Critical (NMC)</b>	<b>Action required</b>
<b>MTF Facilities that are disabled</b>	<b>Disabled- H2O, power, etc. awaiting restoration of steam &amp; water by ENG staff</b>	<b>Action required</b>
<b>MTF infrastructure</b>	<b>3 of 11 blood bank freezers OOC due to electrical ground issues.</b>	<b>Action required</b>
<b>Network IATO/ATO</b>	<b>NIPR/SIPR Accreditation needed &amp; UPs replacement</b>	<b>Action required</b>
<b>WSC-8</b>	<b>SHF- slow connectivity max 768</b>	<b>Action required</b>
<b>Manning</b>	<b>HA/DR TO – awaiting info from FFC</b>	<b>Action required</b>



# COMSC N00M

UNCLAS//FOUO



## T-AH MISSION PREPARATION

MTF SYSTEMS							
Manpower ID	MTF, NGOs, Military Dets (CDR Staff, Security, Helo, PAO, Partner Nations, etc), Develop TO					●	
Logistics	85% AMAL/Stock, Mission specific medical items					●	
Food Service	Provisions on load					●	
Galley/Equipment	Galley Equipment, Ovens, Chill Box, Refrigeration					●	
Ship's Store	Emblematics, Health and Comfort Items					●	
Disbursing	Full Disbursing Operations, Safes					●	
Postal	Postage Meter, Stamps					●	
Laundry and Self Serve Laundry	Equipment Status, Supplies					●	
Operations	O2N2, Flt Deck, Radio					●	
Comms	NIPR, SIPR, WSC-8, Non-Classified Network, BGANS, Hand Held Radios, PAO Suite, Int'l Cell Phones, Iridium Phones and SATCOM					●	
Mission Funding	Guidance, Line of accounting, Advance receipt (120-day pre deployment)					●	
Network	IATO/ATO/WSC-8					●	
MTF Facilities	O2N2 Plant, Steam, Power, H2O, Reefers, Freezers, Plumbing, T-ALTS Completed					●	
Training	Ship Board Orientation, Fire Fighting, Life Raft Commander					●	
MTF Medical IT Systems	CHCS, Tele-Medicine, DMLSS, SNAP					●	
Medical Equipment/Supplies	CT, Radiology, Lab, Blood/Blood Products					●	
●	On-track	●	Issue(s) requires resolution	●	Off-Track not recoverable	Ⓐ	Action required

UNCLAS//FOUO





UNCLAS//FOUO



# International Medical Response

## **International Medical Forces Afloat:**

SPS CASTILLA  
ITN CAVOUR  
FRS SIROCCO  
ARM HUASTECO  
ARM TARRASCO  
ARM PAPALOAPAN  
ARC BUENAVENTURA  
ARC CARTAGENA DE INDIAS

## **Initial Responders:**

USS NORMANDY  
USS UNDERWOOD  
USCG LARAMIE  
USCG LEGARE  
USCG OAK  
USCG VALIANT  
USCG HAMILTON  
USCG TAHOMA  
USCG DEPENDABLE

## **GoH / NGO / OGO Medical Forces Ashore:**

Ministry of Health  
United Nations  
USAID  
International Red Cross  
World Health Organization  
Partners in Health

## **International Medical Forces Ashore:**

Canadian Field Hospital	Russia- Mobile Hospital
China- Medical Rescue Team	Brazil- Field Hospital
Chile-Portable Hospitals	Turkey- Field Hospital
Japan- Medical team	France- Field Hospital
Jordan - Field Hospital	Venezuela- Medical Team
Israel- Field Hospital	Cuba- Medical Team
Spain- Medical Team	Italy- Medical Team

## **US JOINT FORCES AFLOAT**

## **+USNS COMFORT+**

USS NASSAU ARG  
USS CARL VINSON  
USS BATAAN ARG

## **US Joint Medical Forces Ashore:**

EMEDS  
SPEAR  
22 MEU  
24 MEU  
JTF-B

Medical response was a Joint, Inter-agency, Civilian and International effort supporting Government of Haiti

UNCLAS//FOUO





# Military Sealift Command

Provided a Wide Range of Capabilities

UNCLAS//FOUO



## Haiti-OUR Port Au Prince

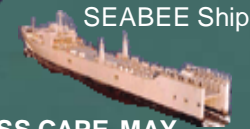


In Norfolk, Va.  
Ready for Tasking

USNS COMFORT



MV VICTORIA HUNT



SS CAPE MAY



SS CORNHUSKER STATE



USNS HENSON



Oceanographic  
Survey Ship

USNS GRASP



Rescue-Salvage  
Ship

HUAKAI



High-Speed Ferry



Two MPS



Two T-AKEs

Four Tug/Barges



- Comprehensive Medical Capability
- Port Survey & Clearance Operations
- Bulk Fuel Support to JOA
- Over-the-beach capability with lighterage
- Transported USMC, USAID, & JLOTS Cargo
- Stores, Replenishment, Fuel
- High Speed Shuttle Service for Passengers & Cargo
- Crane Service for JLOTS Cargo Offload
- Tug-Barge Combos Shuttle to JAX & GTMO

**MSC Enables Joint Sea-Base**

United States Naval Forces Southern Command

Not to Scale



UNCLAS//FOUO



# Lines of Operations

Operations



Security

Transportation



Medical



Personnel

Supply Mgmt



Knowledge Mgmt

MoH Support

- 872 patients and 130 escorts admitted
  - 104: Highest number of admissions in one day
- 931 surgical procedures performed
  - 16 Craniotomy
  - 44 Spinal
  - 33 Pelvis
  - 676 Extremity
  - 122 Femur Fracture surgeries
- 16 medical site surveys and 26 LZ surveys
- 15 medical site visits for follow-up and post-operative care

UNCLAS//FOUO

United States Naval Forces Southern Command





UNCLAS//FOUO



# Operations

- Task Group provided critical linkage between the medical operations and the overall joint mission
- Operations center balanced mission requirements and the transport of critical patients in a highly dynamic environment
- Planning cells produced numerous COA and CONOPS supporting daily mission requirements and tasking
  - Medical site surveys
  - HLZ surveys
  - Redeployment planning
  - Patient movement
- Embedding LNOs in critical areas was key to coordination between task group assets



Liaison Officer proved critical in providing the “boots on the ground” perspective to operational planning

UNCLAS//FOUO



UNCLAS//FOUO



# Theater Security Cooperation

- **Helo Operations Conducted with Partner Nations**
  - Canadian GRIFFON
  - French PUMA
- **DV Visits**
  - Colombian Field Medical Team
  - Canadian Surgeon General
  - Haitian Minister of Health
  - French ship FRS SIROCCO
- **Cross Deck Visit/Surgery**
  - Italian ship ITS CAVOUR



*"The U.S. answered the call very early. The U.S. came to help us and we don't know how to really thank you."*

-Dr. Alex Larsen  
Minister of Health-Haiti



UNCLAS//FOUO

United States Naval Forces Southern Command





# COMFORT Medical Capabilities

## First 36 Hours

UNCLAS//FOUO



- Deployed with standard Humanitarian Civil Assistance (HCA) mission capabilities.
  - Utilized Continuing Promise model
- Surgery
  - Deployed with 1 orthopedic surgeon
  - Performed 36 straight hours of lifesaving surgery on first day of patient admissions
- Medical Staff
  - Broad range of specialties based on HCA missions vice critical mass casualty response
- Nursing Services
  - Wards staffed for 250 beds
  - Filled 411 beds with critical care patients



Develop JMD tailored to provide medical capabilities for disaster response missions

UNCLAS//FOUO

United States Naval Forces Southern Command



UNCLAS//FOUO

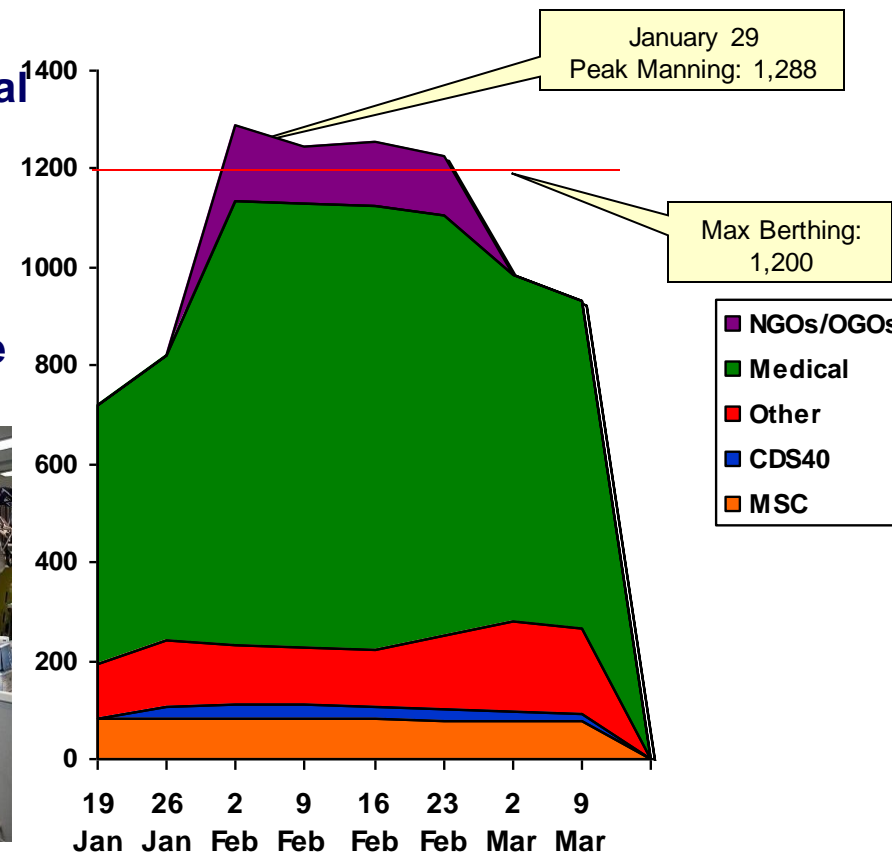


# USNS COMFORT PERSONNEL

- Joint Effort - US Military/Civilian, AD/Reserves, NGO's, American Red Cross
- “Right Sized” Medical Staff Based on Need
  - Synchronized Medical Capacity with Medical Mission Requirements
  - Translators a Critical Mission Element
  - Berthing Limitations a Major Constraint
  - Need to Plan for Patient Escorts Bed Space



## USNS COMFORT MANNING



Tailored the Manpower Requirements to Maximize Medical Capabilities Needed for Earthquake Injuries





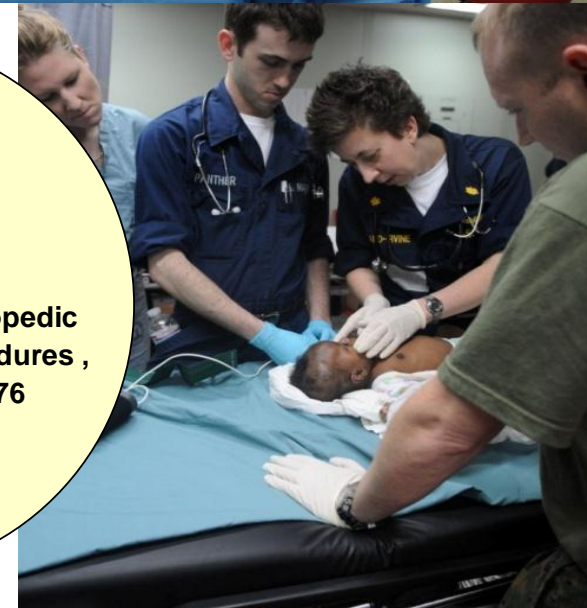
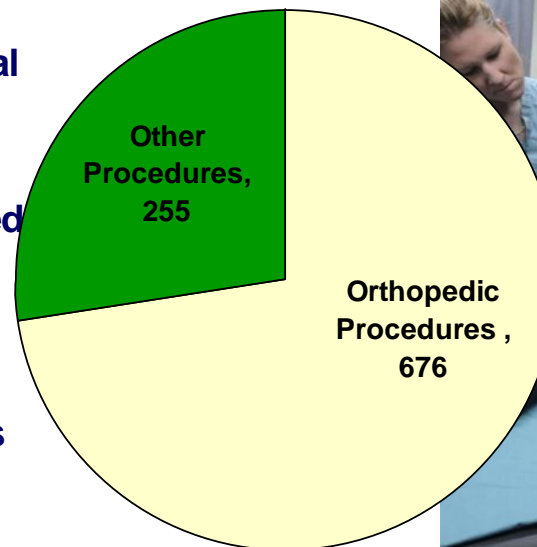
# MEDICAL CAPABILITIES

UNCLAS//FOUO



## 2<sup>nd</sup> wave of medical augmentees

- **Surgical Capabilities**
  - Orthopedics, Neuro-Surgery, ENT, Plastic, Burn, Dermatology, Urology, Obstetrics, Maxillofacial, Oral Dentistry, Wound Care
  - 7 OR's 12 hours/day
  - 3 OR's 24 hours/day
  - 820 Surgeries (931 Procedures) Performed
- **Medicine Capabilities**
  - Cardiology, Nephrology, Infectious Disease, Neurology, Internal Medicine
  - Pediatrics, Respiratory Therapy, Physical Therapy
- **Equipment Capabilities**
  - CT, Dialysis, C-Arms, Fluoro, Specialized Diagnostic Capabilities in Clinical Lab
- **Bed Capacity**
  - 1,000 Beds on Paper
  - Limited by Complexity of Patient Injuries and Patient Escort Requirements



UNCLAS//FOUO

United States Naval Forces Southern Command



UNCLAS//FOUO



# NGO/OGO Medical Augmentation

- 246 Volunteers from 9 Organizations
- Alleviated high patient/provider ratios
- Orthopedic Trauma Association (OTA)
  - 25 member team cleared backlog of 120 orthopedic cases within 4 days
- National Nurses United (RNRN) augmented nursing staff throughout the MTF
  - Patient discharge planning with Project Hope, ensuring patients transferred to proper facilities
- American Red Cross translators facilitated provider/patient interaction
  - Allowed patients to make informed decisions in hospital therapy and follow-on treatment
- Coordinated with US Dept of Health, USAID and other OGOs



- American College of Surgeons
- American Red Cross
- Johns Hopkins
- National Nurses United
- Operation Smile
- Orthopedic Trauma Association
- Project Hope
- University of Michigan
- UCLA
- USAID



**NGO partnerships filled critical gaps in specific medical and translation skills**

UNCLAS//FOUO

United States Naval Forces Southern Command

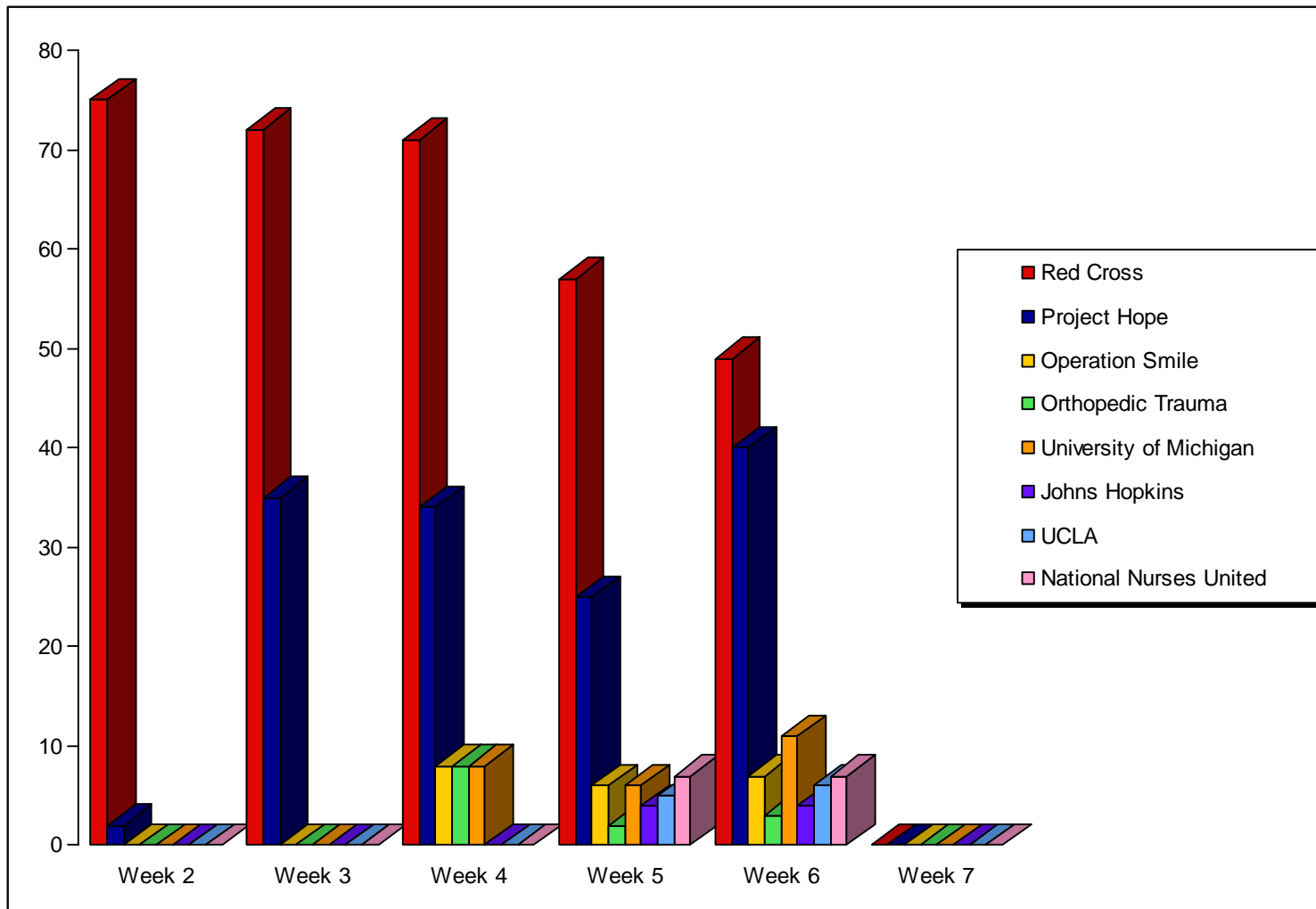




UNCLAS//FOUO



# NGOs



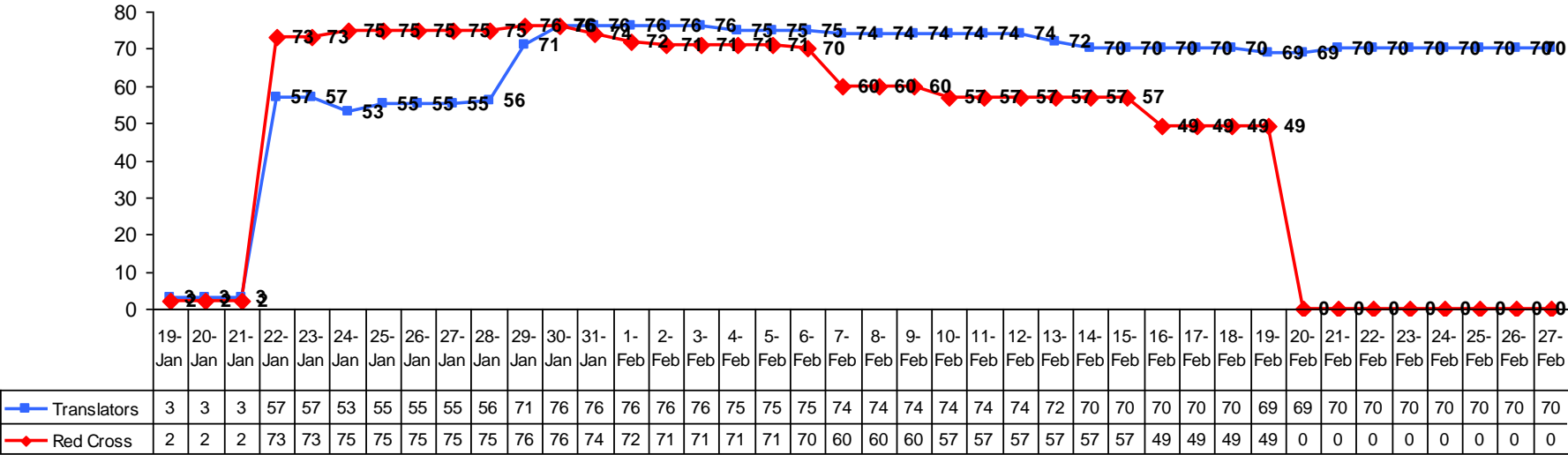
UNCLAS//FOUO

United States Naval Forces Southern Command



# AMERICAN RED CROSS TRANSLATORS --104 VOLUNTEERSUS NAVY TRANSLATORS –66 FROM THOUGHOUT THE NAVY

## Interpreter Census On Board USNS COMFORT (T-AH 20) Operation Unified Response Haiti





UNCLAS//FOUO



# MEDICAL OPERATIONS FOCUS

## TREAT



## TRANSPORT



## DISCHARGE



## COMPASSION



## ASSESS



## AFTERCARE



UNCLAS//FOUO

United States Naval Forces Southern Command



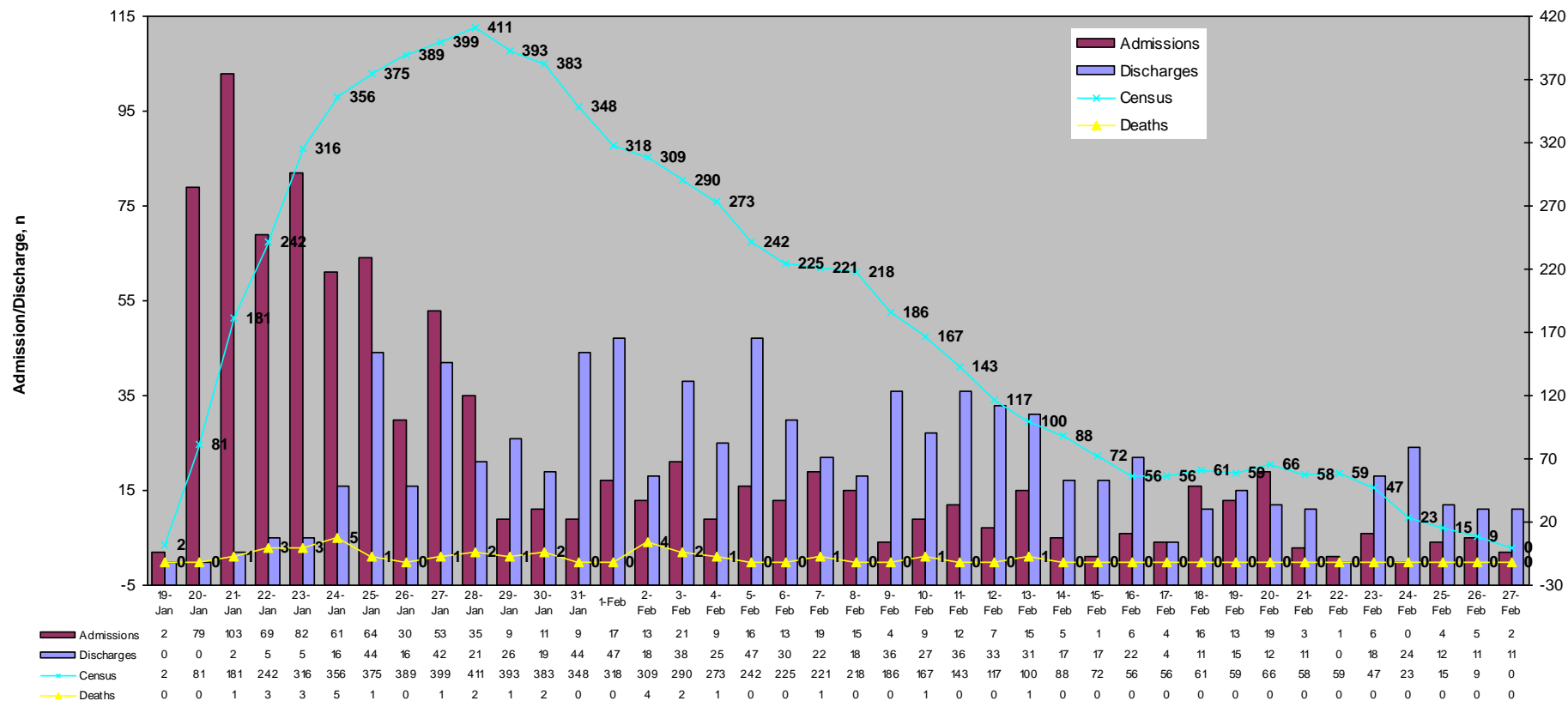


UNCLAS//FOUO



# Admissions, discharges, deaths

USNS Comfort Operation Unified Response Haiti  
Patient Admissions, Discharges, Deaths 19 Jan - 3 Mar



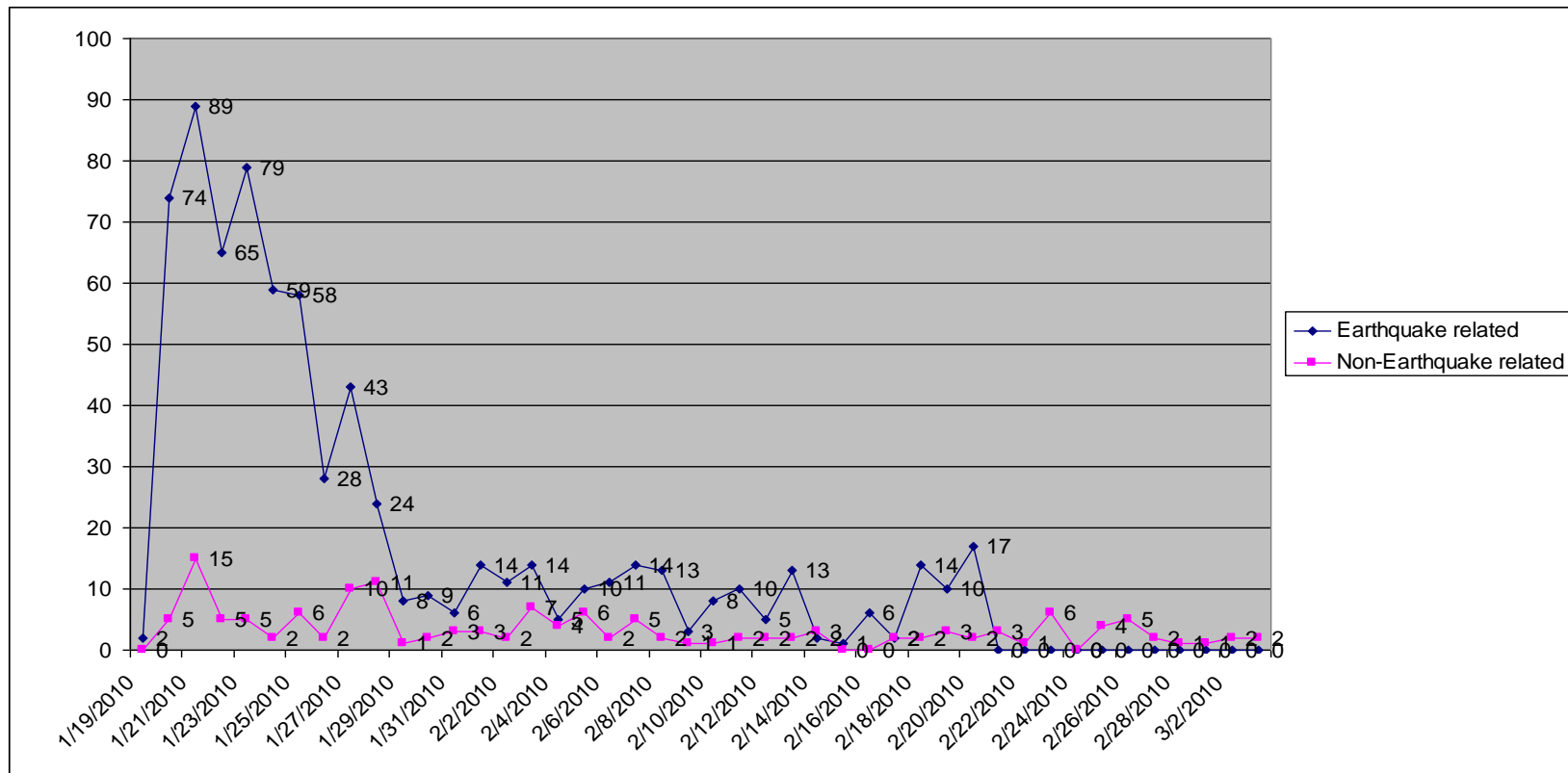
UNCLAS//FOUO

United States Naval Forces Southern Command



## NON EARTHQUAKE RELATED CASES

0000 EST 19 Jan – 3 Mar 2010



N=727 Earthquake Related  
N=145 Non-Earthquake Related  
N=872 Total number of Inpatients seen since Jan 19th

19% of total  
patients seen  
were  
non-earthquake  
related



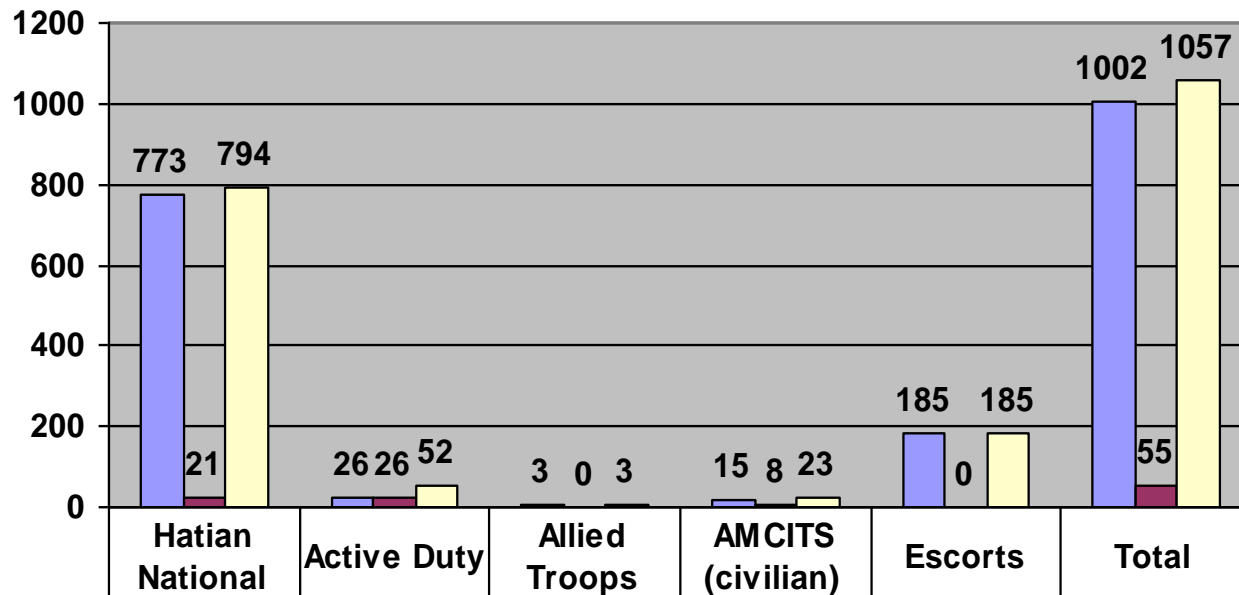
# Total Admissions by Patient Type

UNCLAS//FOUO



0000 EST 19 Jan – 3 Mar 2010

## Inpatient & Outpatient Total Admissions for Operation Unified Response Haiti



	Haitian National	Active Duty	Allied Troops	AMCITS (civilian)	Escorts	Total
Inpatient	773	26	3	15	185	1002
Outpatient	21	26	0	8	0	55
Total	794	52	3	23	185	1057

UNCLAS//FOUO



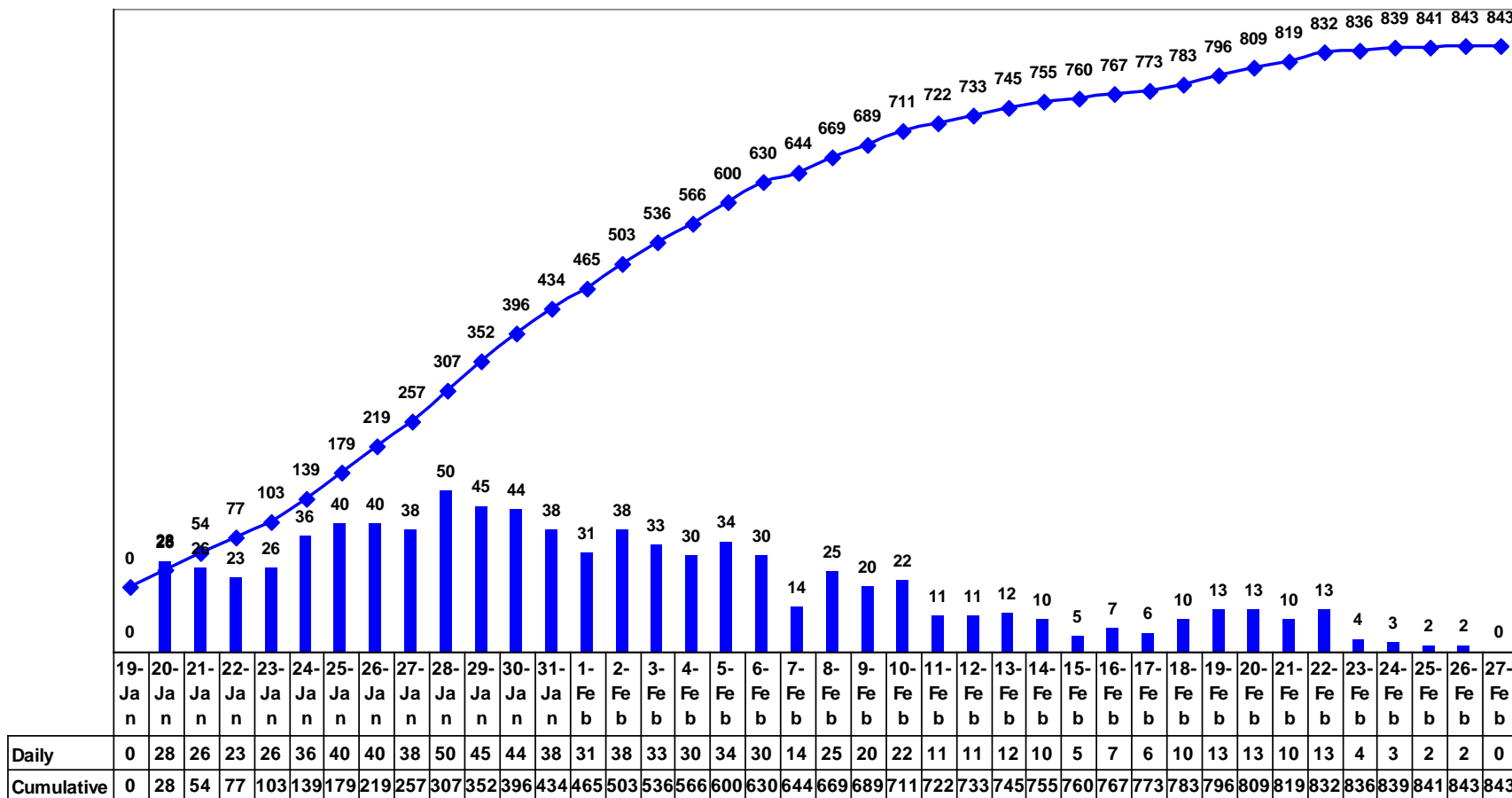


# SURGERIES USNS COMFORT

UNCLAS//FOUO



0000 EST 19 Jan – 3 Mar 2010



UNCLAS//FOUO

N=843



# Ancillary Services

UNCLAS//FOUO



## USNS Comfort Jan 20-28 Feb 2010

- **Radiology Studies – 3,896**
  - Plain film x-rays – 3,296
  - CT Scans – 482
  - Ultrasound - 118
- **Laboratory Studies – 4,257**
- **Prescriptions – 70,286**
  - Inpatient – 64,840
  - Outpatient – 5,446
- **Physical Therapy - 1,318**
- **Blood Products – 376 transfused**
  - Red Blood Cells – 348
  - Plasma – 16
  - Platelets - 12

UNCLAS//FOUO

United States Naval Forces Southern Command



UNCLAS//FOUO



# Transportation

## Air Ops

- 2 organic MH-60s completed 160 helo sorties (302.5 hours)
- Deck landing every 8 min during initial phase
  - 1251 patient transfers
  - 211 DV pax transfers
  - 166 medical staff transfers
  - 77 Air-evacuations
- Utilized NALO/CODs
- Coordination of international air assets



## Boat Ops

- 593 boat missions.
  - 35 admissions and 446 discharges
- Seabee causeway at piers allowed patient discharges & transfers to Killick and Terminal Varreux



## Ground Ops

- Used combination of COMFORT, USAID, and other units' vehicles to move patients and medical teams to land-based facilities
- Security teams required for all ground movements
- Dynamic schedule made it difficult to rely on centralized JTF-H assets



Utilized joint and inter-agency transportation model for patient and personnel movement

UNCLAS//FOUO

United States Naval Forces Southern Command





UNCLAS//FOUO



# Accepting Medical Facilities- 16

Children of Promise**	1
Sacred Heart**	45
Partners in Health	14
Real Hope for Haiti	10
Love a Child	90
Killick	9
Terminal Varreux	360
St. Damien's Children's Hospital**	30
Heart Line	12
Angel Missions	10
Gheskio Hospital	1
PIH / Double Harvest**	4
Doctors without Borders	3
Canadian Field Hospital	3
St. Boniface**	25
Aerovac	77



GoH / UN approved shore-based medical network provided placement of COMFORT patients for post-operative care

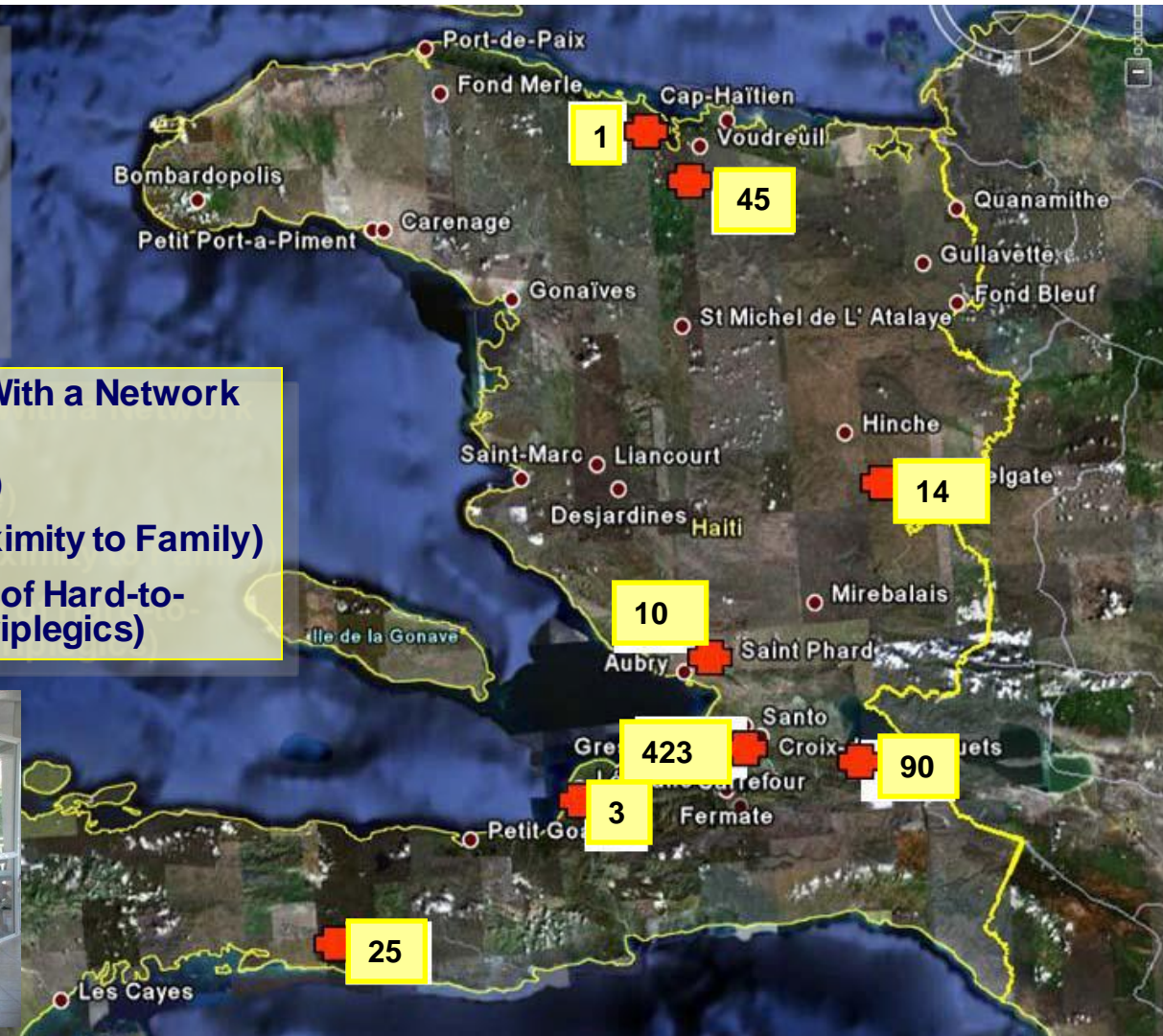




UNCLAS//FOUO



# PATIENT TRANSFERS



- Coordinated Patient Transfers With a Network of Haitian/NGO facilities
  - Capabilities (Level of Care)
  - Geographic Location (Proximity to Family)
- Networking Facilitated Transfer of Hard-to-Place Patients (e.g. TBIs, Quadriplegics)



Local Medical Facility Network Provided Continuum of Care of COMFORT Patients



UNCLAS//FOUO



# Psychological and Spiritual Wellness

- **SPRINT-Special Psychiatric Rapid Intervention Team**
  - Provided psychological care to patients and caregivers
  - Facilitated transition assistance briefs for all personnel prior to re-deployment
- **Chaplains had a strategic and operational impact to the mission**
  - 3 Chaplains provided 24/7 spiritual support to patients and caregivers
  - Bereavement counseling for family members and “angel” escorts.
  - Hosted 1 month anniversary service w/ patients and escorts and memorial service upon departure



UNCLAS//FOUO

United States Naval Forces Southern Command





UNCLAS//FOUO



# Supply Chain Management

## Preparations

- From Reduced Operating Status to Full Operating Status within 3 days
- One-day load out prior to deployment to load
  - 380 pallets of medical supplies, MREs, relief supplies
  - 9 tractor trailer loads of food
- \$19M expended (4,000 line items requisitioned) for medical supplies and equipment

## Sustainment

- Critical medical equipment and supply replenishment
  - Portable X-Ray equipment
  - Orthopedic hardware
  - Fresh blood supply
  - Acinetobacter supplies and vaccines
- High priority cargo via NALO to GTMO and helo from VIN / BAT
- Limited use of PaP APOD due to security, cold chain, transportation challenges

## Joint Operations

- Synchronized with JTF-H Joint Logistics Command, JFMCC/CTF 41, and Joint Logistics Hub/CTF 48
- Offloaded 117 pallets of donated medical supplies to USAID-sponsored distribution facility ashore
- Onloaded 120 pallets of EMF medical supplies and equipment for return to CONUS
  - Saved operating costs for three C-130 airlifts



UNCLAS//FOUO

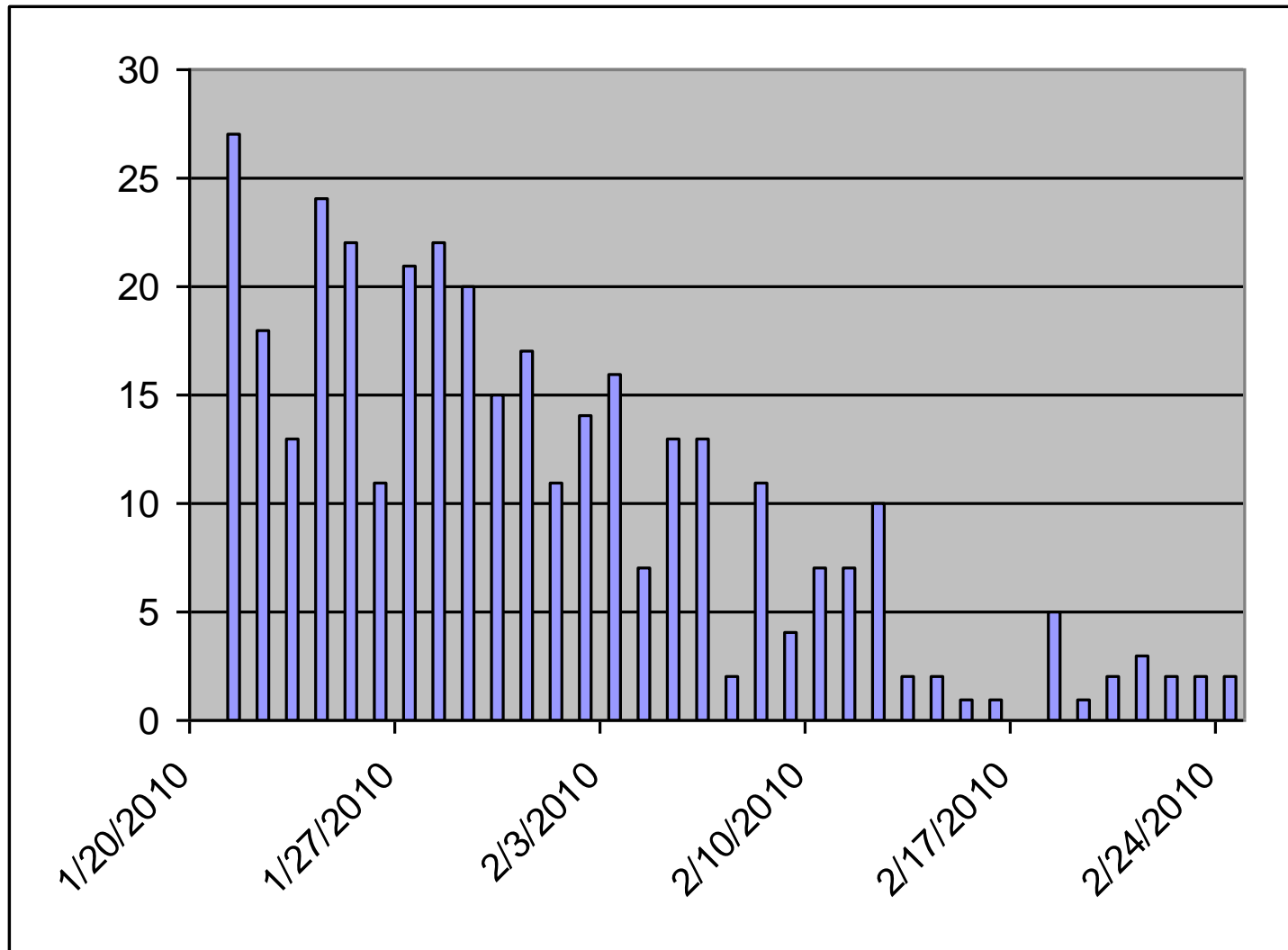
United States Naval Forces Southern Command



UNCLAS//FOUO



# RED BLOOD CELL USAGE OPERATION UNIFIED RESPONSE 2010 (TOTAL = 348 UNITS)



UNCLAS//FOUO

United States Naval Forces Southern Command



UNCLAS//FOUO



# BLOOD SUPPLY

- **USNS COMFORT** expended 52 units of Blood in first 2 ½ days of medical operations.
- **Armed Services Blood Program Office Still in Process of Ramping Up Blood Supply Chain**
  - Once Operational...They Were Superb!
- **Critical Surgery Had to be Deferred Until Blood Supplies Could be Replenished. Baby Isabella Had to Wait to be Born Until Blood Arrived**
  - Take Notice of Isabella in Both X-Ray and Bassinet...She Survived With No Amniotic Fluid to Protect Her For Over a Week!
  - Mom Survived as Well After Orthopedic Pelvic Surgery a Few Days Later
- **GTMO Clinical Laboratory/Blood Bank a Critical Enabler in Providing Immediate Blood Supply Requirements**
- **Medical Logistics Urgently Coordinated Movement of Blood to Ship Within Six Hours Helping Save Both Isabella and Her Mom!**



UNCLAS//FOUO

United States Naval Forces Southern Command





UNCLAS//FOUO



# ORTHOPEDIC SUPPORT

- Encountered Horrendous Injuries and Incredible Volume of Orthopedic Patients. Not since WWII has Navy Medicine experienced so many orthopedic injuries in one location in a 30 day period.
- Required Immediate Augmentation Supplies, Equipment and Surgical Specialists
- Synthes Reps Invited and Transported to Ship to Facilitate Sophisticated Supply Order
- Three C-Arms & Four Mobile X-Rays Rapidly Procured Through GE & Delivered to Ship
- Staff Augmented with 20+ NGO Volunteer Orthopedic and Neurology Surgeons
- Medical Logistics "Air, Land, & Sea Adventure" Required to Obtain Critical Orthopedic Supplies
- For Six Weeks, The COMFORT was Most Advanced and Busiest Orthopedic Trauma Center in World



UNCLAS//FOUO

United States Naval Forces Southern Command



UNCLAS//FOUO



# ACINETOBACTER (ACB) RESPONSE

- **Encountered Highly Dangerous Acinetobacter Infection on Ship.**  
**Introduced by 2 separate index cases.**
  - Contracted by approx 20+ Patients.
- **Patients at High Risk of Death Due to Serious Wounds/Compromising Injuries**
- **Lack of Ship Space/Isolation Issues Could Easily Spread Deadly Epidemic To All Our Patients.**
- **Required Massive and Immediate Procurement of Gloves/Gowns/Masks and “Cold Chain” Antibiotics**
- **Medical Logistics Successfully Worked Issue To Expedite Critical Supplies to Ship Within 24 Hours**
- **ACB was Contained and Eventually Eliminated!**

UNCLAS//FOUO



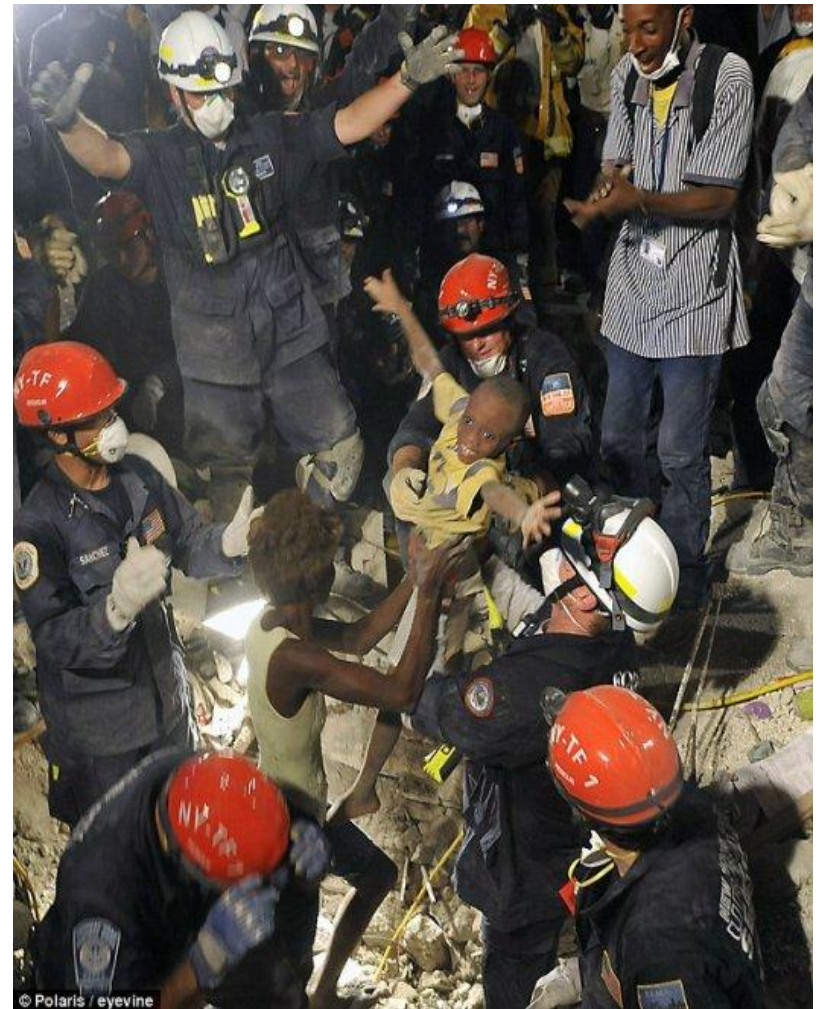




UNCLAS//FOUO



# QUESTIONS?



UNCLAS//FOUO

United States Naval Forces Southern Command





UNCLAS//FOUO



# C4I Internal & Ship to Shore COMMS

1. Secure shore based military communications (portable) – PSC 117F
2. Web based EOC collaboration tools and supporting mobile satellite internet access terminals (BGAN/VSAT) for shore based use
  - Web EOC, PreviStar or county specific EOC collaborative website
3. VoIP/Local Emergency Response Radio Integration (WAVE/IPICS)
  - Military to civilian radio and Civilian to civilian radio communications.
  - Integrate shipboard communications systems with civilian emergency response personnel
4. Picocell Mobile cellular coverage
  - Utilize the T-AH platforms as a floating cell tower base station to provide cell coverage in the event that local infrastructure is damaged
5. Ship/Shore Host Nation Cellular Integration
  - PBX/Host Nation Cell Network integration for HCA and Foreign DR
6. MTF Internal Communications Upgrades

UNCLAS//FOUO

United States Naval Forces Southern Command



# T-AH C4I DSCA/Host Nation Cellular Integration

## Operational Need

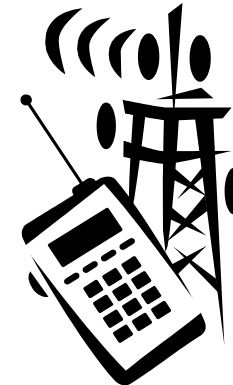
**Objective:** A. Disaster Response Stand alone Cellular System

B. Host nation cellular integration for HCA C. Telemedicine

**Value to Warfighter:** Enhanced disaster response and HCA interoperability between DoD, partner nations, NGO and HN

**Gap or Sea Power Pillar:** Lack of communication outside of military to military standard satellite communications.

**Impact if not addressed:** Limited communications with HN & partners due to absence of Civilian SATCOM, compromised cell infrastructure and inability to receive unsecure comms aboard



## Proposed Solution

**Technology:** PICO cell system technology, Cellular Integration Antenna, and \*CBSP

**Similar/Related Projects:** Commercial Broadband Satellite Program and VSAT ashore for Telemedicine.

\*FY10/11 CBSP installation aboard T-AH

**Technology Readiness Level:**

**Major Goals/Schedule by Fiscal Year:** FHD BOD endorsement to CFFC or NORTHCOM for approval and funding. Establishment of telemedicine Working Group to define T-AH requirement.

## Business Case

**Key Metrics:** Improved Communication

**Proposed Funding (\$):** Initial >\$100K

**Partners:** CFFC/NORTHCOM/BUMED

**Transition Sponsor:** COMSC

**POC Info:** CAPT James P. Rice, MC,